

What is claimed is:

- Sub A1* >
1. An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:
    - an image sensor for generating the image signal from an array of photosites; and
    - an optical section having a birefringent uniaxial crystal optical filter interposed in a path of the incident light to produce a blurred image on said photosites, wherein said birefringent uniaxial crystal optical filter birefringence is greater than 0.05.
  2. An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:
    - an image sensor for generating the image signal from an array of photosites; and
    - an optical section having a birefringent uniaxial crystal optical filter interposed in a path of the incident light to produce a blurred image on said photosites, wherein said birefringent uniaxial crystal optical filter is lithium niobate.
  3. An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:
    - an image sensor for generating the image signal from an array of photosites; and
    - an optical section having a birefringent uniaxial crystal optical filter interposed in a path of the incident light to produce a blurred image on said photosites, wherein said birefringent uniaxial crystal optical filter is calcite.
  4. An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:
    - an image sensor for generating the image signal from an array of photosites; and

an optical section having a birefringent uniaxial crystal optical filter interposed in a path of the incident light to produce a blurred image on said photosites, wherein said birefringent uniaxial crystal optical filter is lithium Tantalate.

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5. An imaging apparatus as in Claim 1 wherein an angle between an optical axis of said optical filter and a line normal to a filter facets is  $37.85^\circ$ .

6. An imaging apparatus as in Claim 1 wherein said optical filter is cut from a boule so that a crystal axis is at  $37.85^\circ$  to the boule axis of symmetry

7. An imaging apparatus as in Claim 1 wherein said optical filter is comprised of a first plate of lithium niobate.

8. An imaging apparatus as in Claim 7 wherein a thickness of said first plate is equal to a thickness of said second plate.

9. An imaging apparatus as in Claim 7 wherein a thickness of said first plate is not equal to a thickness of said second plate.

*Sub A<sup>2</sup>* → 10. An imaging apparatus as in Claim 1 wherein said blurred image is comprised of at least four spot.

11. An imaging apparatus as claimed in Claim 1 wherein said optical section includes a lens, and said optical filter is positioned between said lens and said photosites for blurring the image on said photosites.

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12. An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:  
an image sensor for generating the image signal from an array of photosites; and

an optical section having an optical filter made of a highly birefringent uniaxial crystal selected from a group comprised of lithium niobate, Lithium Tantalate, and calcite interposed in the path of the incident image light so as to produce at least four spots at a detector plane.

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13. An imaging apparatus as set forth in Claim 12 wherein said birefringent uniaxial crystal optical filter is comprised of two double refractors, and said four spots form a rhomboidal pattern wherein a sharp angle of the rhomboid is  $45^\circ$  and wherein the optical filter is rotated about an optical axis of the imaging apparatus such that a base of the rhomboidal pattern forms an angle with one of two major coordinates of the imaging apparatus of between  $20^\circ$  to  $40^\circ$ .

Sub A<sup>3</sup>

14. An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:

an image sensor for generating the image signal from an array of photosites; and

an optical section having an optical filter made of lithium niobate interposed in a path of the incident image light so as to produce at least four spots at a detector plane and wherein an optical axis of the lithium niobate is at an angle of approximately  $37.85^\circ$  from a filter facet.

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